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Use of Digital Video to Assess Orientation and Mobility Observational Skills

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Abstract: This study compared the observational skills in orientation and mobility (O&M) of nine university students and nine certified O&M specialists using a digital video assessment. The students differed from the O&M specialists in their stylistic observations and the details of their responses. Implications for the improvement of video assessments are discussed.

Observational skills are crucial to being a competent orientation and mobility (O&M) instructor. To serve clients effectively and promote independent travel, O&M instructors need to assess clients' current levels of abilities and to monitor the clients' acquisition and development of skills. To do so, they must observe at a level that is sophisticated enough to determine the vital needs of their clients for safety and independence and plan individualized instruction accordingly. This level of observation goes beyond just being able to identify what a person is doing incorrectly in the implementation of techniques or orientation. Effective observation involves a deeper understanding of how errors in the performance of skills or orientation ultimately affect the overall goal of safe, independent travel.

The ability to determine why skills are performed incorrectly is a crucial competence for dynamic instruction. This ability can be compared to what Mattingley and Flemming (1994, cited in Unsworth, 2001) described as the "clinical reasoning skills" of occupational therapists. Occupational therapists reason in narratives, constantly modifying their "stories" about the type and effects of therapy on the basis of the evaluation of turning points and clients' perspectives. O&M instructors do the same as they observe their clients traveling in a variety of settings with different levels of difficulty to make instructional decisions.

As would be expected, observational skills that lead to effective "clinical reasoning skills" develop over time. Collins and Affeldt (1996, cited in Unsworth, 2001) described expert observation as the ability to observe many aspects of a situation at once and to make multiple determinations on the basis of a single set of observations. Novices are more likely to reason step by step, rather than holistically, and to focus on one aspect of a situation.

Since O&M novices need time and experience to become expert observers, practice in field-specific observation should begin early. University preparation programs recognize that it is not enough for preservice students to be able to perform the core O&M skills themselves under simulation (blindfold and low vision simulation). Performing mobility skills under simulation forms the basis for the acquisition of content knowledge and is a first step to becoming a competent O&M instructor. However, the ability to perform these skills does not necessarily mean that students can assess a future client's level of skills. Skill in teaching, of which observation is a critical component, is essential. To promote the application of content knowledge, O&M preparation programs need to foster the development of keen observational skills in their students as early as possible.

One challenge for university O&M programs is to find sufficient opportunities for students to practice these observational skills. Most university programs have practicum experiences that allow students to observe O&M instructors in the field and do some isolated teaching before they go on to internships or student teaching. In addition, some limited practice in observing and teaching may take place in the simulation course (the core course for learning O&M techniques). The traditional "dropoff" lesson, offered as an evaluative method to the simulation course, measures a student's cumulative ability to perform O&M skills under simulation, to find a destination within a familiar space when he or she is intentionally disoriented by the instructor.

However, an additional method of assessing the observational skills of each student would also be beneficial. The performance of preservice students in this assessment could be compared to remediate any blatantly absent skills in observation at the novice level before these students participate in practicum experiences or internships. As a group, instructors can identify areas that may not have been emphasized enough in course work, and each instructor can identify students who do not observe errors in important skills that are linked to safety. This assessment could also be used in conjunction with internship observations to document more objectively a student's demonstration of basic O&M standards and competencies, among which are the ability to assess, observe, and monitor (Academy for Certification of Vision Rehabilitation and Education Professionals, 2003).

Digital video, which is easier to edit than is traditional video, is one medium with which to create a mechanism that allows students to observe a travel scenario directly, especially when real-time opportunities are limited. Video, in general, has been used in a variety of ways for assessment. Some programs in a medical model have videotaped practitioners interacting in actual therapeutic settings (Unsworth, 2001), whereas others have used video to record a medical practitioner's skills while interacting in simulated scenarios with patients (Humphris, 2002; Smith, Fuller, Kinnersley, Brigley, & Elwyn, 2002). Still others have used video to assess the observational skills of evaluators observing undergraduate students during internships (Cross, Hicks, & Barwell, 2001). In educational settings, video has been used to develop student teachers' pedagogical knowledge (Lampert & Ball, 1998, cited in Wang & Hartley, 2003) and the ability to observe and interpret students' behavior (Towers, 1998, cited in Wang & Hartley, 2003). Video can and has been used for similar purposes in O&M. Video efforts have included the creation of an O&M skills curriculum (San Francisco State University, 1998), and digital video would be useful for taping lessons conducted by university students during internships as a basis for evaluation, documentation, creation of a portfolio, and discussion of progress.

The assessment method that is presented in this article reflects an additional way of using digital video. It approximates the method of the Objective Structured Video Exam for assessing communication skills

(Humphris & Kaney, 2000) that was developed to provide medical students with feedback before they take another assessment that requires interaction with simulated patients. Similarly, the video assessment serves as a means of measuring students' observational skills of mobility before the students put these skills into practice with clients. With the increase in distance education programs, it is one of many video efforts being tested by universities as they investigate the most effective ways to deliver course content and to measure students' learning.

We realize that the use of digital video has limitations for cohorts of students that include O&M students who are blind, since the observational skills of blind students are of a different nature and would need to be assessed with different criteria. The intention of the assessment is to provide an evaluative method that allows some "standardization" for comparing students' ability to observe in a manner that is time- and cost-effective for programs with limited resources and faculty. Digital video assessment could also hold promise as a means of assessing distance education students in O&M. Since distance education students in some university programs may be receiving diversified training experiences from a variety of certified O&M professionals, an assessment method via digital video would provide some verification to the university faculty of a student's level of skill in observation compared to that of other students.

The purpose of the study presented here was to test a new digital video assessment to measure university students' observational abilities. To do so, the following questions were investigated: Is there a difference between the performance of university students and certified O&M specialists on the assessment? Does the students' performance on the assessment approximate the students' performance in the simulation course? Are there aspects of the video assessment that should be revised on the basis of the students' performance and comments on a survey?

Method

Development of the instrument

The video assessment consisted of three continuous travel clips of approximately two minutes each. The video clips were enacted by the sighted researchers traveling with a long cane in different settings: indoors, a residential area, and a business district. We planned four to five errors in advance, either in mobility techniques (in accordance with the techniques in Hill & Ponder, 1976; Jacobson, 1993; LaGrow & Weessies, 1994) or in the instructor's positioning, that were appropriate for each travel situation. For example, in the indoor setting, errors included incorrect positioning on the stairs and errors in performing the sighted guide technique (see Box 1 for a list of intended errors in each travel environment).

A response form was developed to obtain information on how well the students identified errors through observation, as well as their reasons, or rationales, for what made each an error and what a more appropriate performance of the skill would be. Without specifying the number of errors that each clip contained, the response form provided space for the students to list the errors they observed and to indicate why each was an error and what would be preferable. Although this video assessment examines the beginning stages of observational abilities--the ability to observe deviations from learned techniques--the additional rationales that were requested from the students helped to differentiate their current level of reasoning about the errors.

Testing method

Of the 18 participants who took the video assessment, 9 (in two cohorts) were O&M students who had just completed the simulation course and who participated in the assessment as a final evaluation in that course, and 9 were certified O&M specialists with teaching experience ranging from 2 to 25 or more years. Because of the exploratory nature of the study, we decided to allow each participant to view the video clips repeatedly, if necessary, because we suspected that observation via video would be different from observation in actual situations, since the angle of viewing cannot be manipulated by the observer, and because we were interested in determining how well the response form worked in conjunction with viewing the assessment. There were no remarkable discrepancies among the participants (students or O&M specialists) in the amount of times they viewed the video clips (an average of three times per clip). Each participant received the same set of instructions from the same researcher. This researcher removed the participants' names and coded the response forms before the other two researchers scored the answers. In addition to the response form, each participant was asked to complete a short survey regarding the video's clarity, fairness, strengths, and weaknesses.

Differences in the students' and O&M specialists' performance on the assessment were investigated as a measure of how well the video differentiated levels of observational abilities. These comparisons were based on the assumption that although students should be able to identify the majority of errors, observations by O&M specialists should be more refined or elaborate. To compare the two groups, we conducted independent samples *t*-tests. Because of the exploratory nature of the study, Bonferroni adjustments were not made to the alpha. For comparisons of the number of errors that were found, raw scores were used in the analysis. For rationales and style errors (discussed later), the individual's raw score was converted to a percentage, since the number of correct rationales was dependent on the number of errors that were found.

As an additional means of exploring the usefulness of the video assessment, the students' instructor in the simulation course completed a rating sheet on each student. It should be noted that the first cohort of students ($n = 4$) had a different instructor for outdoor mobility than did the second cohort ($n = 5$), owing to uncontrollable circumstances, so the ratings were done by different instructors. Both instructors supplied each of their student's average quiz grade and final grade. They also rated each student on a 5-point Likert scale, ranging from not competent (1) to highly competent (5). The students were rated in three categories: level of content knowledge, level of observational skills demonstrated in class, and level of teaching skills. On the basis of these Likert ratings and their sense of each student as a whole, the instructors rank ordered their cohort overall, with a rank of 1 designating the strongest student. Ranking occurred after the students completed the simulation course and before they underwent the video assessment. The instructors were not involved in scoring the assessment itself. Comparisons were made between students' rank in the simulation course and students' performance on the assessment as a more direct measure of how well the video approximated the students' overall performance.

Scoring procedures

As was noted earlier, the participants' performance was scored by two of the researchers who are O&M specialists. Total (100%) interrater agreement was reached on any discrepancies between the scorers through discussion and review of the video. On the basis of the responses, three categories were created to code the type of errors found by each participant. The first category was intended errors (that is, the planned errors that were deliberately portrayed in the video clips). The second category was other errors. These were often subtle errors, identified by the participants, that a review of the video determined to be legitimate; they included observations that the cane tip was too high for safe descent on the stairs and not clearing the first step off a curb. Both the intended errors (a total of 14 across the video clips) and other errors (a total of 17 across the video clips) were counted. The rationale for errors was also scored by considering the "why it was an error" and "what would be preferable" responses together to make a qualitative determination of correctness. The participants were given credit for a rationale if they supplied additional correct information under these two categories beyond what they supplied in the "error observed" category.

The third category, nonerrors, were errors that were considered to be incorrectly identified or irrelevant or could not be actually determined because of the angle of the video. For this category, rationales were scored on the basis of whether a nonerror was identified as a result of the preference or style of the O&M instructor rather than just being an incorrect determination. For example, a stair descent identified as incorrect because the traveler should always use the hand railing was considered to be an instance of an O&M instructor's style or preference for certain safety measures, rather than an incorrect technique. Nonerrors that resulted from the angle of the video, such as the arc of the cane being too narrow in a few locations, were also noted.

Results

Students versus O&M specialists

Intended errors.

The averages for the two groups were similar for the number of intended errors that were identified in the assessment. The students found an average of 9 of the 14 intended errors (ranging individually from 6 to 14, $SD = 2.6$), and the O&M specialists found an average of 8.9 (ranging individually from 6 to 12, $SD = 1.9$). This difference was not significant at an alpha of .05 ($p = .919$) on an independent-samples *t*-test. The rationales that both groups gave for the intended errors were accurate, with 91% of the students' rationales and 95% of the O&M specialists' rationales being correct; again, this difference was not significant ($p = .403$). No student missed more than one rationale for an intended error that was found, and all but two O&M specialists gave correct rationales 100 percent of the time. Qualitatively, however, the O&M specialists' rationales were, overall, more detailed and comprehensive. No apparent connection between years of experience teaching in the field and the performance of the O&M specialists was observed for intended errors.

Total errors.

As would be expected, when intended and other errors were combined, for a total of 31 errors found in the assessment, the performance of the O&M specialists and student groups were still similar. On average, the students found 12.3 errors (40%), and the O&M specialists found 12.9 errors (42%).

Other errors.

The O&M specialist group found slightly more other errors (3.7, $SD = 1.6$), on average, than did the students (3.3, $SD = 1.4$), but this difference was not significant ($p = .644$). The similar standard deviations show that within-group variability was comparable for the O&M specialists and the students. In addition, 90% ($SD = 17.5$) of the O&M specialists' rationales and 72% ($SD = 34.2$) of the students' rationales for the other errors were considered to be correct; this difference was not significant at the .05 level ($p = .174$). As can be seen in the standard deviations, the students also varied more widely in their ability to give correct rationales than did the O&M specialists. The percentages of correct rationales, based on the number of errors that were identified, ranged from 0 to 100% for the students, with three students receiving 100% on the rationales, and from 50% to 100% for the O&M specialists, with five O&M specialists receiving 100% on the rationales.

Nonerrors.

To a greater extent than with other errors, the O&M specialists also identified more nonerrors, on average (7.1, *SD* = 4.6) than did the students (4.3, *SD* = 3.0), but this difference did not reach significance ($p = .150$). As a group, the student-identified nonerrors were considered to be individual style 26% (*SD* = 22.3) of the time, whereas the nonerrors identified by O&M specialists were considered to be stylistic 72% (*SD* = 12.6) of the time; this difference was significant at the .05 level ($p = .000$). In addition, qualitatively, the students identified some similar stylistic errors within their own cohort, indicating the influence of the instructor during the course, whereas the O&M specialists' stylistic nonerrors varied. An interesting pattern in the O&M specialists' responses, however, was a focus on safety--particularly the use of the handrail when ascending and descending stairs with and without a sighted guide. Six O&M specialists (67%) indicated failure to use the handrail as an error compared to just one student (11%).

Differences among the video clips. Since both the O&M specialists and students performed similarly on the assessment for intended errors, the two groups were combined to investigate if there were any significant differences on the video clips (in different environments) in the participants' ability to pick out errors. If any significant differences were found, the video and intended errors that were chosen should be reviewed to determine why one clip would be easier than another overall. A repeated-measures analysis of variance was used for this analysis. The mean percentages of errors that were found in the clips were 61% (*SD* = 21.1), 64% (*SD* = 25.3), and 67% (*SD* = 25.7) for indoor, residential, and business environments, respectively. No significant differences among these clips were found (F [2,34] = .286, $p = .753$).

Item analysis.

In addition to comparing the general performance of the students and O&M specialists, we compared the differences between the two groups' observations of intended and other errors. Table 1 lists errors that more than one person found between the two groups. The two errors that the students were more likely to find--out of step during residential travel and not clearing the first step before stepping off a curb--were expected, since the students had just completed the simulation course, in which they were working on being in step and performing techniques. The O&M specialists, however, may have been working with clients or students who had difficulty staying in step and may not have focused as closely on that error. The errors that the O&M specialists observed more often were related to safety or more subtle errors in the video.

Students' assessment scores versus class rank

Since the two student cohorts had different instructors a year apart, comparisons of rank to performance on the assessment were made by cohort. In the simulation course, the students in Cohort 1 (*n* = 4) varied little in their performance. Their final course grades ranged from A- to A +, and their average quiz grades ranged from 93% to 100%. The instructor also rated each student similarly on his or her level of knowledge of techniques, level of observational skills, and level of teaching skills that were demonstrated in the course. Ratings for students in Cohort 1 ranged from 5 (highly competent) to 4 (competent). For Cohort 2 (*n* = 5), the students' performance was also similar. All the students received an A in the course, and their average quiz grades ranged from 98% to 100%. The instructor's ratings of the students' knowledge of techniques and teaching skills ranged from 5 (highly competent) to 4 (competent) and from 5 to 3 (moderately competent) for observational skills. Such close ratings on performance made it more difficult to gauge the usefulness of the video to differentiate competent novice observers from those who needed more assistance. Nevertheless, for the percentages for intended and the more-subtle other errors combined, a general pattern did emerge for Cohort 1. The students who were ranked 1 and 2 in the course found the most total errors, 52% and 45%, respectively.

The pattern observed in Cohort 2 was less clear. The students who were ranked 2 and 3 found the most overall errors, with the third-ranked student finding the most (61%, 42% for the second-ranked student). The first-ranked student in Cohort 2 found 32% of the errors, equal to the number of errors of the fifth-ranked student. Upon closer examination of the assessment form, the first-ranked student left blanks on the response form as if to return to those responses later, but did not. Although the reason for these omissions can only be speculated upon, it is possible this student either forgot or felt rushed (even though the assessment was not timed) and chose not to return to the beginning of the clip to fill in the blanks. Of course, it is also possible that the student decided that there were no errors in that segment of the clip. While no clear-cut pattern emerged, qualitatively, the rationales of the students who were ranked higher in their course tended to have a greater level of depth and insight. Table 2 shows the students' rank, average Likert scores on the three rating categories, and the Likert scores given specifically for observation. These scores are compared to the number of intended errors that were found and the percentages of correct rationales for intended errors by themselves and grouped with other errors.

The survey

After the assessment, both the students and the O&M specialists were asked to complete a survey regarding the quality, difficulty, and fairness of the assessment. Overall, 94% of the students and O&M specialists thought that the assessment instructions and response form were very clear, and one student thought that they were moderately clear. Seventy-eight percent of the students were satisfied that the observational skills that they developed in the simulation course were sufficient to evaluate the video clips, while one student (the first-ranked student in Cohort 2 who found one of the lowest amounts of errors) thought that they were moderately sufficient. Furthermore, 22% of the students and 78% of the O&M specialists thought that the assessment was very fair; the majority of the students (56%) thought that the assessment was moderately fair. In terms of difficulty, most students (56%) and O&M specialists (44%) thought that the assessment was moderately difficult. No pattern was observed between the students' ratings on fairness and difficulty with performance on the assessment. Qualitative comments were also solicited from both students and O&M specialists. These comments are discussed in the next section.

Discussion

Implications of the results of the assessment

The students, overall, demonstrated a basic ability to identify errors and to give accurate, basic rationales about why the errors were considered to be mistakes. They had an advantage over the O&M specialists in that they had just taken the simulation course in which "ideal" techniques were taught and practiced. Intended errors were selected with the training of students in mind, so it was expected that the students would perform as well as the O&M specialists at this level. And at the objective level of the number of errors that were found and the correct rationales that were given, this is exactly what occurred. Thus, it appears that their field work training was sufficient to enable the students, as a group, to identify "textbook" errors at the same rate as that of the experienced O&M specialists. This is a desired outcome.

However, as would be expected from comparing an experienced group with a novice group, the overall responses of the O&M specialists group were more detailed and elaborate than were those of most of the students. This difference was apparent in the details presented in the majority of the O&M specialists' rationales and in the O&M specialists' comments about the assessment. In their rationales, the O&M specialists more often gave additional information regarding what might happen if some of the identified errors were not remedied, whereas the students's comments generally focused only on how the errors deviated from the techniques that they had been taught.

Also, on the survey, three O&M specialists had questions about the travelers' profiles, including questions about the travelers' level of functional vision, familiarity with environments, and additional impairments. Only one student, the first-ranked student in Cohort 2, thought to ask these questions. Furthermore, two students and no O&M specialists inquired about the intent of the travelers. These students thought that it would have been easier to find the errors if they knew what the traveler was doing, which they found difficult to anticipate by viewing the video clip. This finding could be interpreted in different ways, but the lack of experience in watching travelers move through environments may have contributed to these comments. In general, the O&M specialists appeared to be thinking more holistically about the situations than were the students.

The greater number of stylistic errors reported by the O&M specialists may also indicate modifications in observation and thinking on the basis of experience in "what works best" for their clients. Of course, some responses may have been due to differences in training. For example, most of the O&M specialists commented that travelers should always use the handrail when ascending and descending stairs, whereas the majority of the students did not indicate that this was an error. The O&M specialists may have been in the habit of consistently recommending that clients should use the handrail as a precautionary safety measure, or the use of the handrail may have been emphasized more strictly in their own preparation programs. Although we can only speculate on the reason, the former seems more likely, since even though all the O&M specialists had being trained at the same university, each O&M specialist was trained at a different time, and most had different instructors. This pattern of greater attention to safety was also seen in more O&M specialists (89%) than students (56%) finding the error in the upper protective technique while moving through tree branches in the residential clip.

Overall, the ability of the assessment to differentiate the quality and correctness of the rationales between the novice students and experienced O&M specialists, as well as between the higher- and lower-ranked students, to some extent, shows promise for the use of digital video as an additional method for assessing the observational skills of preservice students. The capabilities of digital video will also allow for easier production of different versions of the assessment (such as the rearrangement and manipulation of clips and the addition of clips) in various media formats (VHS, CD, and DVD).

Improvement of the digital video assessment

In this study, we hoped to gather preliminary information not only about the usefulness of the digital video, but about the quality of the video itself for further refinement and testing. The other errors indicated by the participants during the assessment--the open-ended survey questions, and the participants' responses on the assessment forms--all provided useful feedback for improving the video.

On the assessment form, both groups of participants tended to give similar answers in the "why was it an error" and "what would be preferable" sections. The responses were so similar in many cases that we decided to collapse these two categories into one determination of correctness of the rationales. The new response form could have a section that focuses on the importance of an error for safety and independence, to determine a student's depth of understanding about the errors. As was discussed earlier, the O&M specialists tended to supply this information spontaneously for some of the identified errors. The addition of a category on importance would provide information about what students tend to focus on during observations. Do they look for the important errors over minor errors? To make this determination, a description of the traveler, as suggested by the O&M specialists, could be provided that includes the traveler's functional vision and other relevant information. In addition, to create an even more authentic situation, actual travelers with visual impairments could be filmed. It may be more difficult, however, to control the types of intended errors made when using actual travelers, especially if a traveler's technique is functional and appropriate but not the textbook version that novice students would have learned. Finally, a master list of what response is expected for a rationale for each intended error should be generated to standardize the scoring further.

Some of the comments on the survey indicated that it was difficult to observe both the traveler's and instructor's errors simultaneously. The video assessment could be restructured to focus on one type of observation at a time. Also, clearer definitions of the types of errors to look for during the assessment could help alleviate some of the other errors and nonerrors that were identified. In addition, considering that 23% of the nonerrors overall were due to problems with the angle of the video (for example, the width of the arc and views of skills blocked by pedestrians), a new version of the assessment would need to remedy these problems or determine that certain types of errors, such as the width of the cane arc, can be observed accurately on video only if a consequence of it is also observed (such as the traveler hitting the parking meter in the business clip).

Limitations and future directions

This exploratory study was conducted to gather preliminary information about the usefulness of a digital video assessment to measure the observational skills of preservice O&M university students and to gain insights into how to improve the video. Overall, the study served its purpose. However, since the students' ranks did not correspond as closely as was hoped with the students' performance on the assessment, this aspect should be further investigated to determine the reason. Does the digital video assessment tap a different level of observation than does students' practice in the simulation course? For example, in the course, students may practice observing for errors about which they most recently learned. The digital video may be an extension of this practice in that it requires students to consider all techniques and aspects of travel at one time. Or is there perhaps a more differentiating measure than class rank to use for comparison?

Furthermore, if the goal is to create a digital video assessment that is useful to the profession as a whole, the study should be extended. In particular, results could vary at other universities that use different approaches for teaching techniques. A larger, more diversified, pool of students would help verify the value of the assessment. An important future direction of this digital video assessment would be to refine the video and create a standardized assessment that is applicable to students in other preservice university programs. The lack of standardized measures in the field of O&M has been a continual issue. The addition of a standardized assessment method would be beneficial for measuring students' levels of observational skills across programs.

To establish a more universal assessment, a series of actions need to be taken. First, university faculty members and O&M professionals in the field need to come to a consensus about which skills to highlight in the video and what they consider to be the acceptable performance of each selected technique. In 1992, a symposium of faculty members from university O&M programs was held at San Francisco State University to come to a consensus on the performance of O&M techniques as part of an effort to develop an interactive mobility curriculum that would demonstrate O&M techniques (San Francisco State University, 1998). Perhaps information that was gained from this symposium could be applied to the video assessment, or a Delphi study could be conducted to discuss the issues again and come to a consensus. Then, the video assessment could be refined and viewed by faculty members and O&M professionals to come to agreement on the errors in techniques that students may be expected to observe and acceptable rationales for why the errors should be remedied. In addition, to standardize the administration of the assessment, the number of times a student can view each clip should be more closely controlled. A final step would be to test the assessment with preservice students at different university programs.

The assessment developed for this study focused on basic techniques, not other aspects of observation, such as the appropriate use of adapted techniques for individuals with additional impairments. It would be useful to create additional video assessments that tap different aspects of observational skills that are important to becoming a competent O&M instructor. For example, a bank of video-assessment clips that evaluate a student's ability to assess the current levels of travelers' skills at various ages and ability levels and then to design an intervention program based on that assessment would be beneficial. Furthermore, clips that require students to observe travelers in unique environments, such as subways and travel in snow, would add breadth to the assessment and provide materials that are unique to different geographic areas. These additional clips may lead to the exploration of the use of the video segments for training purposes other than assessment.

Finally, it would be beneficial to research comparable assessment methods of observational skills for O&M preservice students who are totally blind. Since most university preservice students take the same standardized examination for certification, creating methods that help O&M programs take a standardized approach to preparing students to meet all the O&M competencies for certification is a powerful way to strengthen the field's reputation for producing high-quality professionals.

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